

Nelson
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Docket No. 4969

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re design patent application of: Lawrence

Serial No. not yet assigned

Filed: January 29, 2001

Title: Mail Opener Apparatus



PRIORITY DOCUMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Transmitted herewith is a certified copy of British Application No. 0002024.8, filed
29 January 2000, priority of which is hereby claimed under 35 U.S.C. §119.

Respectfully submitted,

A handwritten signature in cursive script that reads "Charles Fallow".

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Reg. No. 28,946

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January 29, 2001



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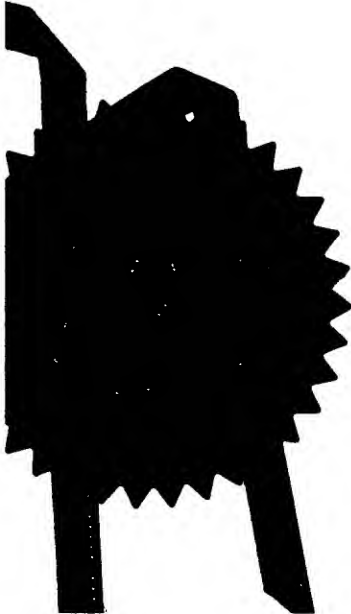
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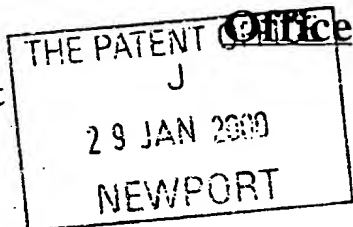
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Dated 18 January 2001



Request for grant of a patent

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| 1. | Your reference | P57884V | 29 JAN 2000 |
| 2. | Patent application number (The Patent Office will fill in this part) | 0002024.8 | CLASSNO 2509-01-1 200001 PUBL NO 9/01-200127-E |
| 3. | Full name, address and postcode of the or each applicant (underline all surnames) | NEOPOST LIMITED Neopost House South Street Romford Essex RM1 2AR | |
| | Patents ADP number (if you know it) | 6117667002 | |
| | If the applicant is a corporate body, give the country/state of its incorporation | GB | |
| 4. | Title of the invention | MAIL OPENER APPARATUS | |
| 5. | Name of your agent (if you have one) "Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode) | Hughes Clark & Co. The Old College 53 High Street Horley Surrey RH6 7BN 114-118 Southampton Row London WC1B 3AA A1 - 15/10/00 | |
| | Patents ADP number (if you know it) | 29246800 0000879008 | |
| 6. | If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or each of these earlier applications and (if you know it) the or each application number | Country | Priority application number (if you know it) Date of filing (day/month/year) |
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| 8. | Is a statement of inventorship and or right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body; See note (d) | Yes | |

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11. I/We request the grant of a patent on the basis of this application

Signature

Victoria J. Maddison

Date 27.1.2000

12. Name and daytime telephone number of
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Victoria J MADDISON

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MAIL OPENER APPARATUS

This invention relates to a mail opener apparatus for use in combination with a postage meter.

Mail opener apparatus are well known. Generally these apparatus comprise a cutting device, typically a blade, which is used to slice open a closed mail piece such as an envelope or a small package allowing the contents to be removed. Such cutting devices may be hand operated or driven by mechanical means.

In accordance with the present invention there is provided a mail opener for use with a postage meter comprising a cutting device, the cutting device being moveable between an operating position and a stowed position where it is inoperative, drive means operable to displace the cutting device between said operating position and said stowed position, said drive means being in communication with and operable by a postage meter, the configuration being such that when the postage meter is operative to print indicia, the cutting device is caused to move to the stowed position and when the postage meter is inoperative to print indicia, the cutting device is caused to move to the operating position.

Modern postage meters generally comprise a printing module which incorporates a print head for printing indicia such as post marks on mail pieces passed through the meter, and an accounting module which carries out accounting functions in respect of postage values to be applied to the mail pieces. The print head is moveable between a printing position and a service position where printing cannot be effected. In pre-payment meters the print head is only enabled to effect printing when the accounting module has effected accounting in respect of the value of the post mark desired to be applied. Once the desired post mark has been applied, the print head is returned to its service

position. Other forms of postage meter are known with different arrangements of printer and accounting system, however, these will share the characteristic that printing cannot be effected until accounting has taken place.

It will be understood that only outgoing mail is desirably franked for postage by a postage meter and only incoming mail is desirably opened by a mail opener. Thus it is desirable that any mail handling or processing station incorporating both a postage meter and a mail opener is constructed and controlled to prevent inadvertent opening of or damage to outgoing mail. This can be achieved by the present invention. By providing a means of intercommunication between the postage meter and the mail opener, the mail opener can be rendered inactive when the postage meter is made active.

The means of communication may be provided in mechanical or electrical form or by the sending of signals such as electromagnetic radiation waves from one device to the other.

Conveniently the devices communicate through mechanical interlocking means being arranged such that a movement of the print head of the postage meter into a printing position causes a simultaneous movement of the cutting device of the mail opener into a stowage position. This may be achieved by means of a cam slider arrangement. For example, the cutting device may be carried by a shaft which is moveable axially in bearings between retracted and operative positions, one end of the shaft in turn being slideable in a slot on a cam slider. The cam slider in turn communicates with the postage meter and is caused to move as the print head moves between its printing and service position. As the cam slider moves, the shaft carrying the cutting device is engaged in the suitably arranged slot between the operating position and retracted position.

Where the postage meter and mail opener are electrically connected to each other a circuit may be provided which senses or responds to movement of the print head and initiates in response the required movement of the cutting device. Similarly, the cutting device may be controlled by a radiated signal sent by a control system contained in the postage meter in response to movement of the print head. Thus mail undergoing franking by the postage meter cannot be damaged by the retracted cutting device.

The cutting device may be provided in the form of a flat blade which can be used to slit a seam of the mail piece or the mail piece may be drawn across the blade to remove the edge of the mail piece and allow access to the contents for removal. Preferably, the blade is a rotary blade, such an arrangement generally involves less friction and provides a cleaner cut. Optionally, the mail opener further comprises means for drawing the mail past the cutter to facilitate opening. Conveniently, these drawing means are provided in the form of a set of feed rollers. The feed rollers may optionally be those already present on the postage meter for ejecting franked mail from the postage meter. Preferably, separate rollers are provided on the mail opener, this allows the mail to be drawn past the cutter at a lower speed than is possible when using the postage meter feed rollers. The position and/or rotating speed of the rollers may be adjustable to suit the characteristics of the package to be opened. For example, at least one of the rollers may be resiliently mounted to allow the rollers to be separated by varying amounts to accommodate different thicknesses of mail.

The mail opener may be configured for attachment to existing postage meters, for example by mechanical fixing to the moving parts of the postage meter. Alternatively, the mail opener may be "built in" to the postage meter during manufacture. The mail opener may share a common power source with the postage meter or may be provided with its own independent power source.

Thus it can be seen that the apparatus provides a multi function mail handling or processing station in compact form with built in safety features. For the purposes of clarification, one embodiment of the invention will now be described by way of example only, with reference to the drawings in which:

Figure 1 shows, from a front perspective view, the operating parts of a mail opener according to the present invention controlled by a postage meter;

Figure 2 shows, from a rear perspective view, the operating parts of a mail opener according to the present invention controlled by a postage meter;

Figure 3 shows from a top view the operating parts of a mail opener according to the present invention controlled by a postage meter;

Figure 4 shows a mail opener according to the present invention embodied in a housing having means for attachment to a postage meter; and

Figure 5 shows a mail piece being opened by a mail opener according to the present invention.

As can be seen from the figures a mail opener generally designated as 1 comprises a rotary blade 2 carried by a rotatable shaft 3 which is displaceable axially along axis C. A pair of feed rollers 4a and 4b are positioned adjacent and down stream of the rotary blade for drawing mail past the blade. The rollers and rotatable shaft are driven by drive mechanism 5 which briefly comprises a drive motor driving an idler shaft and a belt drive from the idler shaft to drive lower roller 4b. Upper roller 4a is driven by frictional communication with mail drawn past it by driven roller 4b. The idler shaft also carries a gear which meshes with a gear carried by rotatable shaft 3 thereby rotating the rotary cutter blade. The gear carried by the rotatable shaft is maintained in driven engagement with the drive gear

by a spring.

A cam slider 6 comprises a strip of rigid material having an angled cam portion 7 which is inclined to the direction of motion of the cam slider driving operation of the device. The cam portion has a slot 8 therein. The rotatable shaft 3 is slidable in the slot 8. An end portion 9 of the cam slider 6 interrelates with a guide pair 11 which each have an angled slot 10 in which the end portion 9 is slidable. The guide pair 11 is fixedly mounted to the print head carrier 12 of a postage meter. The print head carrier 12 carries the print head between its printing and service positions.

The print head carrier 12 moves fore and aft along an axis designated by arrow A in figure 1. When printing of indicia is to be effected, the print head carrier 12 moves forward along axis A carrying with it guide pair 11. The mail opener body is fixed in position, relative to the postage meter, the cam slider 6, rotary cutter 2 and its shaft 3 being free to move independently of the body. As the print head carrier of the postage meter moves forward, the end portion 9 engaged in the slots 10 is constrained by the guide pair 11 to cause movement of the cam slider 6 towards the print head carrier 12 along axis B. Consequent movement of the inclined cam portion 7 of the cam slider 6 draws the rotatable shaft 3 and rotary blade 2 rearward along axis C. The blade is thus retracted into a position where it cannot inadvertently damage outgoing mail.

As the print head carrier carries the print head into the service position, moving rearwardly along axis A, the cam slider 6 is pushed away from the print head carrier 12 by means of end portion 9 sliding in guide pair 11 again along axis B. The rotatable shaft 3 and cutting blade 2 are consequently pushed forward along axis C allowing the blade to align with the feed rollers 4a and 4b and for mail that is drawn through the rollers to be cut open by the blade.

The mail opener is contained in a housing 13 which carries a protective guard 14 to prevent inadvertent interference with and potential injury from the enclosed rollers and rotary blade. The guard may further comprise a mail guide, which may be a continuation of a guide provided on the postage meter, behind which the rotary blade retracts when the print head is brought to the printing position.

Thus it can be seen that movements of the print head carrier 12 cause reciprocal movement in an opposite direction of the rotary blade 2 so that during franking of outgoing mail the mail opener is rendered inoperative.

As can be seen from Figure 5, a mail piece 15 is fed with an edge 17 thereof just beyond the edge of rotary blade 2 in its operating position. The mail piece 15 is fed by the postage meter under the rotating blade 2 and enters a nip between rotating feed roller 4b and idler roller 4a. The feed rollers 4a and 4b then draw the mail piece 15 past the blade 2 and the opened mail piece 15 is ejected.

The mail piece is guided by mail guide 16 to provide a straight cut immediately adjacent to the edge 17 of the mail piece to avoid damage to the contents. While the rotary cutter is forward in its operative position as shown in Figure 5, the print head carrier 12 sits back in its service position behind the mail guide 16. The dotted line shows the normal position of the printhead carrier when in its printing position. When the rotary cutter 2 is in the retracted position, the rotary cutter is disposed to lie behind a surface of the mail guide 16 that is engaged by the mail pieces so that the rotary cutter cannot engage and damage the outgoing franked mail pieces.

It is to be understood that the foregoing represents just one embodiment of the invention others of which will no doubt appear to the skilled reader without deviation from the true scope of the invention as claimed in the

appended claims.

CLAIMS

1. A mail opener for use with a postage meter comprising a cutting device, the cutting device being moveable between an operating position and a stowed position where it is inoperative, drive means operable to displace the cutting device between said operating position and said stowed position, said drive means being operable by a postage meter, the configuration being such that when the postage meter is operative to print indicia, the cutting device is caused to move to the stowed position and when the postage meter is inoperative to print indicia, the cutting device is caused to move to the operating position.

2. A mail opener as claimed in claim 1 wherein the postage meter comprises a print head which is moveable between a printing position and a service position where printing cannot be effected, the configuration being such that movement of the print head into its printing position causes movement of the cutting device into the stowed position.

3. A mail opener as claimed in claim 1 or claim 2 further comprising a mail guide which extends in alignment with a mail guide provided on the postage meter for guiding a mail piece past the cutting device when the cutting device is in its operating position and behind which the cutting device retracts into its stowed position.

4. A mail opener as claimed in any preceding claim wherein the drive means communicates with the postage meter by mechanical interlocking means.

5. A mail opener as claimed in claim 4 wherein the cutting device is carried by a moveable member, the interlocking means comprises a cam with which the moveable member engages, such that operation of the cam causes movement of the cutting device between its operating position and its stowed

position.

6. A mail opener as claimed in any preceding claim wherein the cutting device is a rotary blade.

7. A mail opener as claimed in any preceding claim further comprising drawing means for automatically drawing the mail past the cutter to facilitate opening.

8. A mail opener as claimed in claim 6 wherein the drawing means comprises a pair of feed rollers.

9. A mail opener as claimed in any preceding claim wherein the position and/or rotating speed of the rollers is adjustable to suit the characteristics of the package to be opened.

10. A mail opener as claimed in claim 1 wherein the drive means communicates with the postage meter via an electrical circuit which is configured to sense movement of the print head and initiate in response the desired movement of the cutting device.

11. A mail opener as claimed in claim 1 or claim 10 wherein the drive means communicates with the postage meter via a radiation signal sent by a control system contained in the postage meter in response to movement of the print head.

12. A mail opener as claimed in any preceding claim wherein the mail opener shares a common power source with the postage meter with which it communicates.

13. A mail opener as claimed in any preceding claim wherein the mail opener

has its own power source independent of the postage meter.

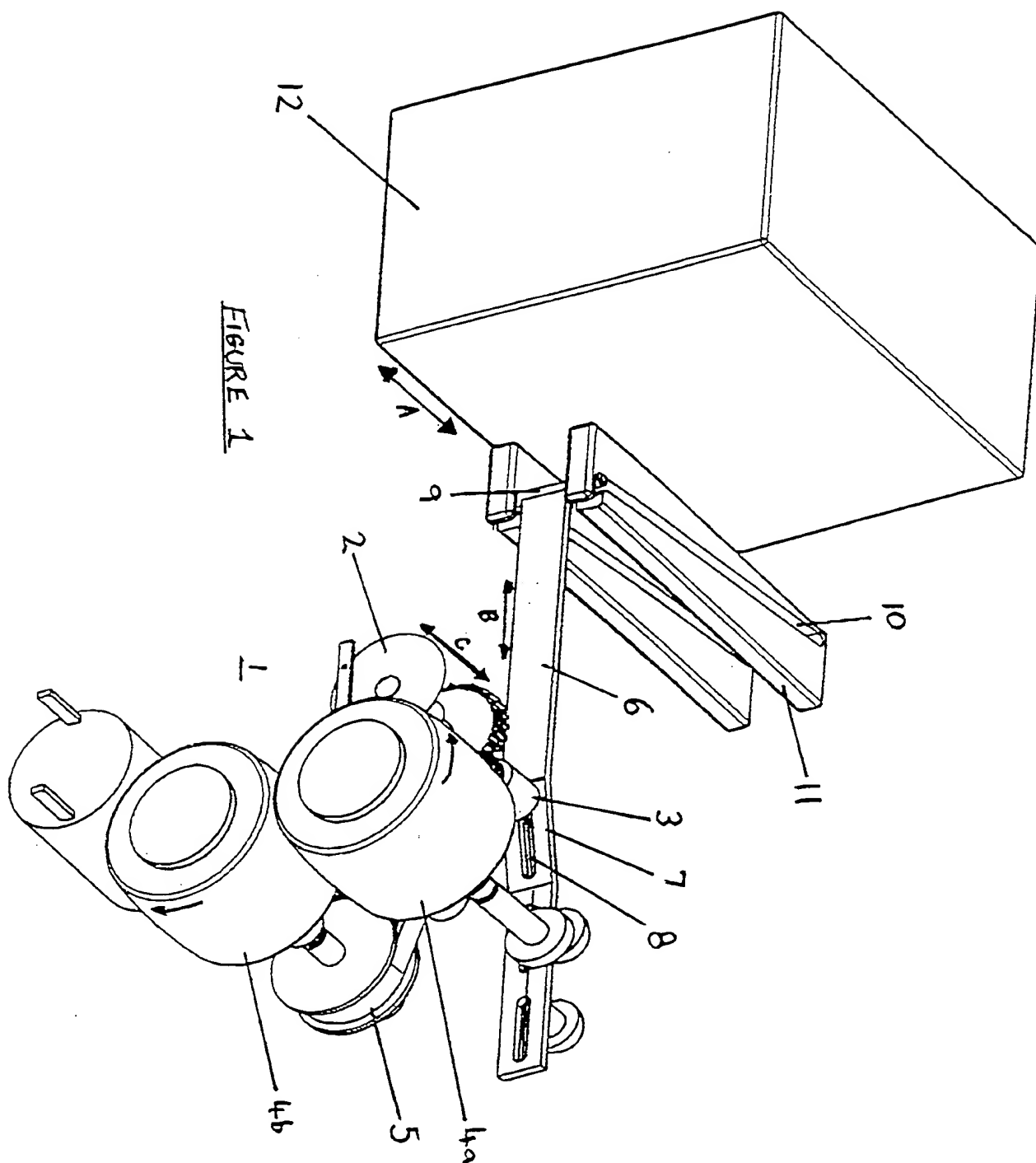
14. A mail opener substantially as described herein with reference to Figures 1, 2, 3, 4 and 5.

15. A mail handling or processing station comprising a postage meter and a mail opener as claimed in any preceding claim.

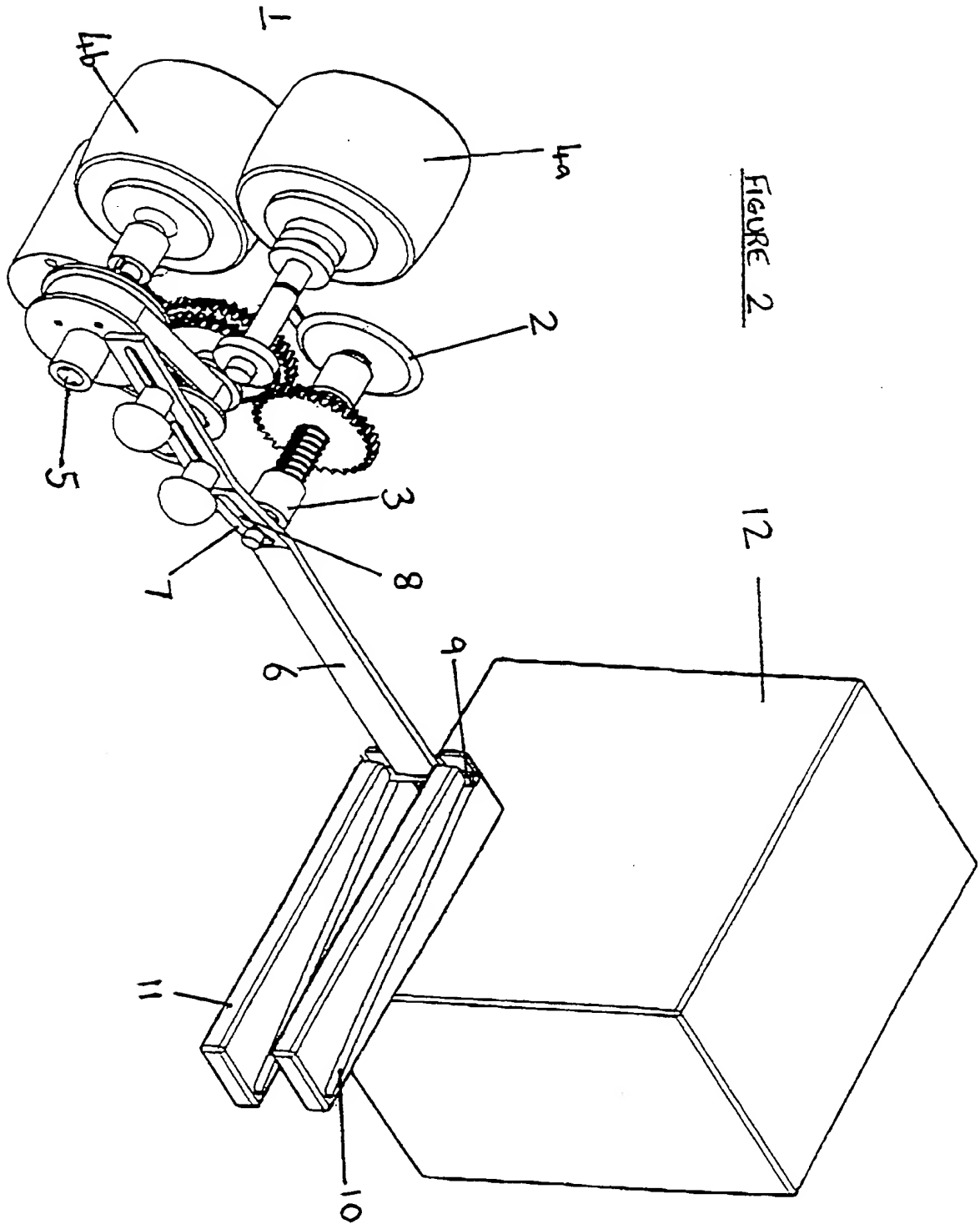
MAIL OPENER APPARATUS

A mail opener (1) comprises a cutting device (2), the cutting device being moveable between an operating position and a stowed position where it is inoperative, the position of the cutting device being controllable by a drive means (6) wherein the drive means communicates with a postage meter and operation of the drive means is controlled by the postage meter. The arrangement is such that a single post station can be provided for both franking mail and opening mail, incorporating a safety measure to prevent newly franked outgoing mail from being inadvertently opened or damaged.

(FIGURE 1)



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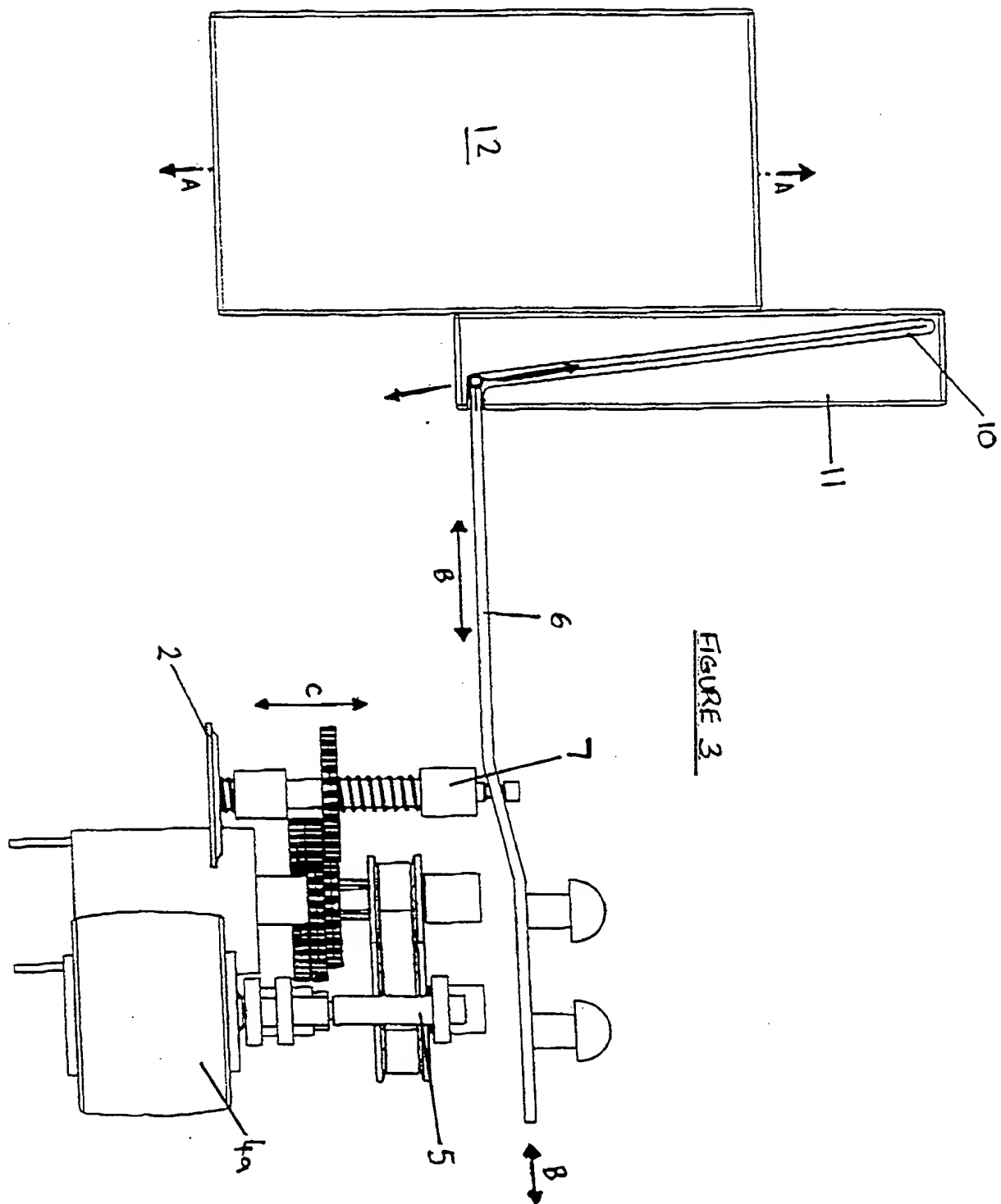
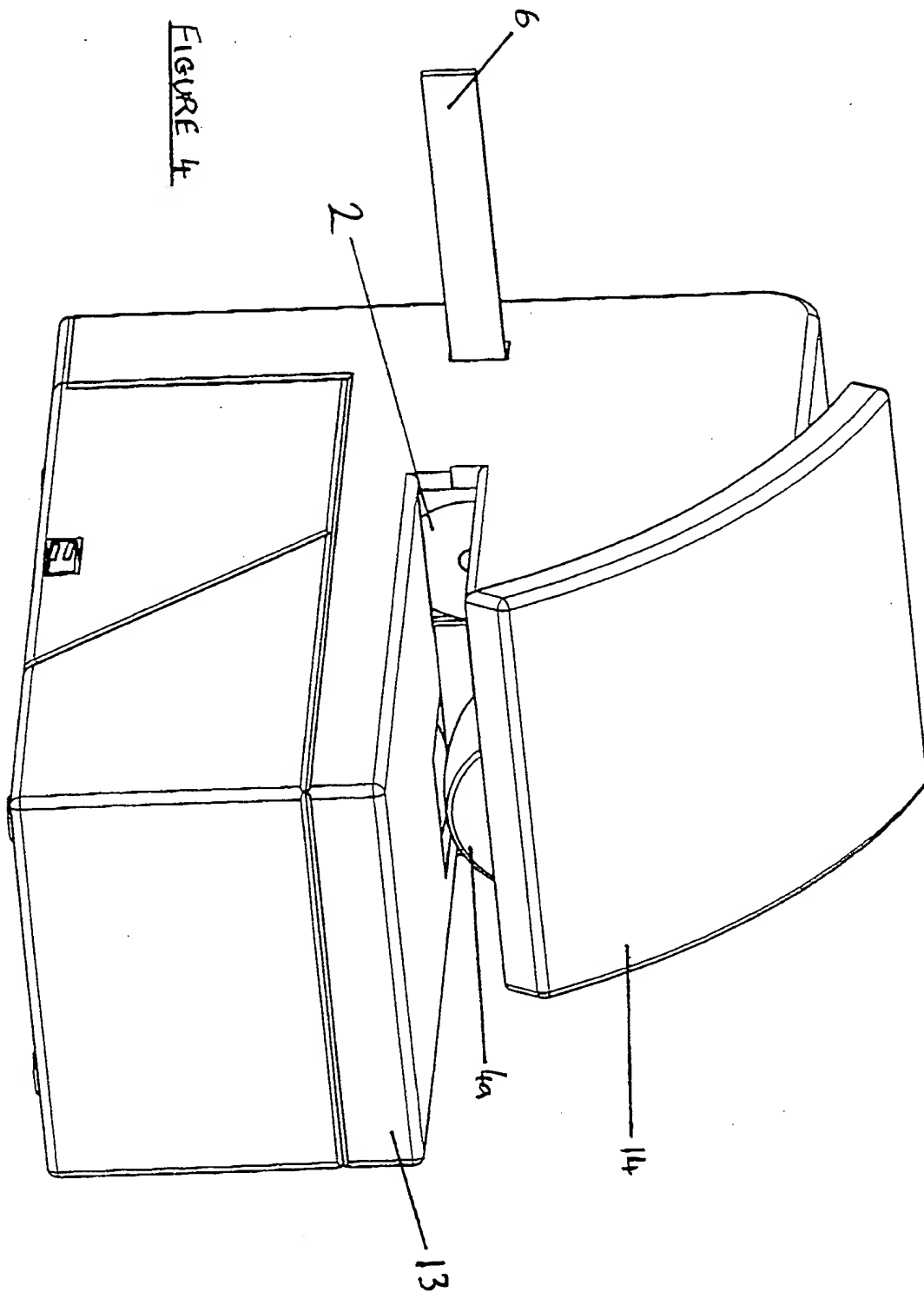


FIGURE 4



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